Criteria and Toxic Air Pollutants Emissions Inventory for Base and Future Milestone Years

Assembly Bill (AB) 617
Community Air Initiatives

Technical Advisory Group Meeting
Friday, October 23, 2020
Source Attribution

What is source attribution?
Rigorous accounting of sources, their emissions and their contribution to cumulative exposure burden

Why are we doing this?
Meet AB617 statutory requirement: provide “[a] methodology for assessing and identifying the contributing sources or categories of sources, including, but not limited to, stationary and mobile sources, and an estimate of their relative contribution to elevated exposure to air pollution in impacted communities...”
Air Pollutants Included in the Source Attribution

Criteria Air Pollutants (CAP)
- VOC, NOx, SOx, NH3, PM2.5 and Pb

Toxic Air Contaminants (TAC)
- 24 reported
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Cancer unit risk 1/(ug/m³)</th>
<th>Relative factor To DPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Benzene</td>
<td>6.77E-05</td>
<td>0.09</td>
</tr>
<tr>
<td>2</td>
<td>Ethylene oxide</td>
<td>8.80E-05</td>
<td>0.12</td>
</tr>
<tr>
<td>3</td>
<td>Formaldehyde</td>
<td>1.42E-05</td>
<td>0.02</td>
</tr>
<tr>
<td>4</td>
<td>Perchloroethylene</td>
<td>1.42E-05</td>
<td>0.02</td>
</tr>
<tr>
<td>5</td>
<td>1,3-Butadiene</td>
<td>4.06E-04</td>
<td>0.55</td>
</tr>
<tr>
<td>6</td>
<td>PAHs(Polycyclic aromatic hydrocarbon)</td>
<td>2.64E-03</td>
<td>3.55</td>
</tr>
<tr>
<td>7</td>
<td>Asbestos</td>
<td>1.90E-04</td>
<td>0.26</td>
</tr>
<tr>
<td>8</td>
<td>Cadmium</td>
<td>1.01E-02</td>
<td>13.58</td>
</tr>
<tr>
<td>9</td>
<td>Hexavalent chromium</td>
<td>3.45E-01</td>
<td>463.71</td>
</tr>
<tr>
<td>10</td>
<td>Nickel</td>
<td>6.16E-04</td>
<td>0.83</td>
</tr>
<tr>
<td>11</td>
<td>Arsenic</td>
<td>8.12E-03</td>
<td>10.91</td>
</tr>
<tr>
<td>12</td>
<td>Lead</td>
<td>2.84E-05</td>
<td>0.04</td>
</tr>
<tr>
<td>13</td>
<td>Diesel Particulate Matter (DPM)</td>
<td>7.44E-04</td>
<td>1.00</td>
</tr>
</tbody>
</table>
South Coast Air Quality Management District

Emissions Inventory Milestone Years

2018-Designated Communities
Baseline: 2017
Future milestone: 2024
Baseline: 2018
Future milestone: 2025
Future milestone: 2029

2019-Designated Communities
Baseline: 2017
Future milestone: 2024
Baseline: 2018
Future milestone: 2025
Future milestone: 2030
Emissions Forecasting

• Emissions are forecasted from base-year inventory using the following equation to incorporate the impacts of growth and regulations.

\[ E_{FY} = E_{BY} \times GF \times CF \]

where:

\[ E_{FY} = \text{Future year emissions} \]
\[ E_{BY} = \text{Base year emissions} \]
\[ GF = \text{Growth Factor} \]
\[ CF = \text{Control Factor} \]
South Coast Air Basin Criteria Air Pollutants

Emissions (tons/day)

<table>
<thead>
<tr>
<th>Year</th>
<th>NOx</th>
<th>VOC</th>
<th>PM2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>396</td>
<td>380</td>
<td>63</td>
</tr>
<tr>
<td>2018</td>
<td>370</td>
<td>369</td>
<td>62</td>
</tr>
<tr>
<td>2024</td>
<td>274</td>
<td>345</td>
<td>62</td>
</tr>
<tr>
<td>2025</td>
<td>269</td>
<td>341</td>
<td>62</td>
</tr>
<tr>
<td>2029</td>
<td>262</td>
<td>338</td>
<td>63</td>
</tr>
<tr>
<td>2030</td>
<td>258</td>
<td>335</td>
<td>63</td>
</tr>
</tbody>
</table>
Southeast Los Angeles

Main sources:
- 70+ facilities with reporting emissions
  - Foundries and metal plating, manufacturing, finishing
  - Auto body shops
  - Rendering
  - Packing
- Large railyards
- I-710 and Alameda corridor
CAPs emissions trend in Southeast LA Community

Southeast Los Angeles total emissions

- 2018: 2,838 tons/year
  - VOC: 2,838 tons/year
  - NOX: 2,629 tons/year
  - PM2.5: 433 tons/year
- 2025: 2,098 tons/year
  - VOC: 2,629 tons/year
  - NOX: 2,098 tons/year
  - PM2.5: 427 tons/year
- 2030: 1,983 tons/year
  - VOC: 2,611 tons/year
  - NOX: 1,983 tons/year
  - PM2.5: 431 tons/year
# Top 5 Sources of PM25 in the Southeast Los Angeles

<table>
<thead>
<tr>
<th>Source</th>
<th>2018</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooking</td>
<td>75</td>
<td>78</td>
<td>80</td>
</tr>
<tr>
<td>Light and Medium Duty Automobile</td>
<td>58</td>
<td>52</td>
<td>51</td>
</tr>
<tr>
<td>Wood and Paper</td>
<td>40</td>
<td>45</td>
<td>47</td>
</tr>
<tr>
<td>Fuel Combustion in Manufacturing and Industrial</td>
<td>36</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Off-Road Equipment</td>
<td>26</td>
<td>19</td>
<td>17</td>
</tr>
</tbody>
</table>
TACs in Southeast Los Angeles

<table>
<thead>
<tr>
<th>Category</th>
<th>2018</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-Road Equipment</td>
<td>34%</td>
<td>33%</td>
<td>28%</td>
</tr>
<tr>
<td>Trains</td>
<td>15%</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>Chemical</td>
<td>8%</td>
<td>15%</td>
<td>21%</td>
</tr>
<tr>
<td>Other (Fuel Combustion)</td>
<td>2%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Other (Industrial Processes)</td>
<td>1%</td>
<td>4%</td>
<td>9%</td>
</tr>
<tr>
<td>Degreasing</td>
<td>9%</td>
<td>18%</td>
<td>10%</td>
</tr>
<tr>
<td>Coatings and Related Processes</td>
<td>7%</td>
<td>9%</td>
<td>21%</td>
</tr>
<tr>
<td>Heavy Duty Trucks</td>
<td>2%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Light and Medium Duty Automobile</td>
<td>4%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Buses</td>
<td>3%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Manufacturing and Industrial</td>
<td>15%</td>
<td>22%</td>
<td>28%</td>
</tr>
<tr>
<td>Others</td>
<td>3%</td>
<td>9%</td>
<td>18%</td>
</tr>
</tbody>
</table>
Top 10 Sources of TACs in the Southeast Los Angeles

South Coast Air Quality Management District
## Categories included in Off-Road Equipment in SELA

<table>
<thead>
<tr>
<th>Category</th>
<th>2018</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction and Mining Equipment</td>
<td>9,514</td>
<td>8,487</td>
<td>6,201</td>
</tr>
<tr>
<td>Industrial Equipment</td>
<td>4,732</td>
<td>3,922</td>
<td>2,522</td>
</tr>
<tr>
<td>Commercial Equipment (Other)</td>
<td>3,299</td>
<td>2,409</td>
<td>1,289</td>
</tr>
<tr>
<td>Diesel TRU</td>
<td>1,693</td>
<td>1,441</td>
<td>1,646</td>
</tr>
<tr>
<td>Commercial Lawn and Garden</td>
<td>1,539</td>
<td>1,737</td>
<td>975</td>
</tr>
<tr>
<td>Lawn and Garden Other</td>
<td>1,539</td>
<td>1,737</td>
<td>975</td>
</tr>
<tr>
<td>Rail Operations</td>
<td>980</td>
<td>1,001</td>
<td>870</td>
</tr>
<tr>
<td>Residential Lawn and Garden (Commercial)</td>
<td>1,287</td>
<td>429</td>
<td>336</td>
</tr>
<tr>
<td>Residential Lawn and Garden (Residential)</td>
<td>1,287</td>
<td>429</td>
<td>336</td>
</tr>
</tbody>
</table>

Toxicity-weighted Diesel Equivalent Emissions (lbs/year)

- **2018**: Year 1
- **2025**: Year 2
- **2030**: Year 3
Top 5 TACs in Southeast Los Angeles: 2018

Southeast Los Angeles Community TACs Emissions
(toxicity-weighted diesel equivalent) in 2018

- DPM: 43,336 lbs/year
- 1,3 Butadiene: 27,088 lbs/year
- Benzene: 1,717 lbs/year
- Hexavalent Chromium: 301 lbs/year
- Formaldehyde: 579 lbs/year

Emissions (lbs/year)
Top 5 TACs in Southeast Los Angeles: 2025

South Coast Air Quality Management District

Southeast Los Angeles Community TACs Emissions (toxicity-weighted diesel equivalent) in 2025

- DPM: 4,746 (Stationary and Area), 7,940 (On-road), 25,540 (Off-road)
- 1,3 Butadiene: 1,361 (Stationary and Area), 1,615 (On-road)
- Benzene: 1,954 (Stationary and Area), 1,347 (On-road)
- Hexavalent Chromium: 798 (Stationary and Area), 278 (On-road)
- Formaldehyde: 940 (Stationary and Area), 499 (On-road)

Emissions (lbs/year)
Top 5 TACs in Southeast Los Angeles: 2030

Southeast Los Angeles Community TACs Emissions (toxicity-weighted diesel equivalent) in 2030

- **DPM**: 4,646 (Stationary and Area), 8,297 (On-road), 19,796 (Off-road)
- **1,3 Butadiene**: 1,139 (Stationary and Area), 1,630 (Off-road)
- **Benzene**: 1,118 (Stationary and Area), 1,347 (Off-road)
- **Hexavalent Chromium**: 278 (Stationary and Area)
- **Formaldehyde**: 482 (Stationary and Area)
Top 5 Diesel PM Sources in Southeast Los Angeles

<table>
<thead>
<tr>
<th>Source</th>
<th>Year 2018</th>
<th>Year 2025</th>
<th>Year 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-Road Equipment</td>
<td>9,992</td>
<td>14,080</td>
<td>29,054</td>
</tr>
<tr>
<td>Heavy Duty Trucks</td>
<td>4,064</td>
<td>11,326</td>
<td>24,708</td>
</tr>
<tr>
<td>Trains</td>
<td>4,194</td>
<td>9,700</td>
<td>14,090</td>
</tr>
<tr>
<td>Other (Fuel Combustion)</td>
<td>1,482</td>
<td>1,004</td>
<td>1,004</td>
</tr>
<tr>
<td>Light and Medium Duty Automobile</td>
<td>1,350</td>
<td>486</td>
<td>298</td>
</tr>
</tbody>
</table>
# Proposed Regulations Reflected in the Future Emissions

## Table 4. Control Factors for Emissions from Vehicles

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Pollutant</th>
<th>Control Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2025</td>
</tr>
<tr>
<td>Proposed Heavy-Duty Low NOx Engine Standard</td>
<td>NOx</td>
<td>0.972-0.992</td>
</tr>
<tr>
<td>Proposed Heavy-Duty Inspection and Maintenance</td>
<td>PM$_{2.5}$</td>
<td>0.614</td>
</tr>
<tr>
<td>Proposed Heavy-Duty Inspection and Maintenance</td>
<td>NOx</td>
<td>0.851</td>
</tr>
<tr>
<td>Proposed Advanced Clean Car 2.0</td>
<td>PM$_{2.5}$</td>
<td>1.000</td>
</tr>
<tr>
<td>Proposed Advanced Clean Car 2.0</td>
<td>NOx</td>
<td>1.000</td>
</tr>
</tbody>
</table>
Effect of Proposed Regulations on CAP Emissions in SELA
Effect of Proposed Regulations on TAC Emissions in SELA

![Bar chart showing the effect of proposed regulations on TAC emissions in SELA.](chart.png)

- **2018**: 96,527 lb/year (toxicity-weighted diesel equivalent)
- **2025 (adopted)**: 53,513 lb/year
- **2025 (adopted + proposed)**: 52,199 lb/year
- **2030 (adopted)**: 47,508 lb/year
- **2030 (adopted + proposed)**: 45,961 lb/year
Summary for SELA

• Total toxicity-weighted TACs emissions are expected to decline in future years
• Off-road equipment is the largest source of TAC emissions
• Diesel PM is the largest contributor to TAC emissions
• Diesel PM declines substantially in future years, but it remains the largest contributor to toxic emissions in the future
Main sources:
• Agricultural activities
• Transport through I-10, and routes 88 and 111
• Freight rail transport
• Construction and demolition
CAPs Emissions Trend in Eastern Coachella Valley

Eastern Coachella Valley total emissions

- 2018: 286 (VOC), 1,376 (NOX), 750 (PM2.5)
- 2025: 322 (VOC), 982 (NOX), 822 (PM2.5)
- 2030: 347 (VOC), 878 (NOX), 877 (PM2.5)
PM2.5 emission trend in Eastern Coachella Valley

Eastern Coachella Valley Community PM2.5 emission by source sectors (tons/yr)

Growth in PM2.5 driven by Construction and Demolition and Paved Road Dust
Top 5 Sources of PM2.5 in Eastern Coachella Valley

- Construction and Demolition: 175 tons/day in 2018, 153 tons/day in 2025, 112 tons/day in 2030
- Paved Road Dust: 51 tons/day in 2018, 48 tons/day in 2025, 42 tons/day in 2030
- Fugitive Windblown Dust: 21 tons/day in 2018, 20 tons/day in 2025, 20 tons/day in 2030
- Farming Operations: 16 tons/day in 2018, 18 tons/day in 2025, 20 tons/day in 2030
- Light and Medium Duty Automobile: 14 tons/day in all years
Top 5 Sources of PM10 in Eastern Coachella Valley

<table>
<thead>
<tr>
<th>Source</th>
<th>2018</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction and Demolition</td>
<td>1117</td>
<td>1749</td>
<td>1522</td>
</tr>
<tr>
<td>Paved Road Dust</td>
<td>276</td>
<td>315</td>
<td>335</td>
</tr>
<tr>
<td>Fugitive Windblown Dust</td>
<td>144</td>
<td>141</td>
<td>139</td>
</tr>
<tr>
<td>Farming Operations</td>
<td>135</td>
<td>119</td>
<td>110</td>
</tr>
<tr>
<td>Unpaved Road Dust</td>
<td>118</td>
<td>113</td>
<td>111</td>
</tr>
</tbody>
</table>
Unaccounted Sources of PM Emissions

• There are several sources not included in the inventory:
  – Unpermitted/Illegal burning
  – Wildfire emissions
  – Windblown dust
  – Natural emissions
    • For example, dust from the Salton Sea playa
The strongest and most frequent hourly winds are northwesterly (desert area).

Source: Imperial Irrigation District Salton Sea Air Quality Mitigation Program
TACs in Eastern Coachella Valley
# Top 10 Sources of TACs in Eastern Coachella Valley

<table>
<thead>
<tr>
<th>Category</th>
<th>2018</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy Duty Trucks</td>
<td>16,959</td>
<td>11,608</td>
<td>10,951</td>
</tr>
<tr>
<td>Trains</td>
<td>3,938</td>
<td>3,813</td>
<td>3,590</td>
</tr>
<tr>
<td>Farm Equipment</td>
<td>10,951</td>
<td>7,385</td>
<td>5,487</td>
</tr>
<tr>
<td>Off-Road Equipment</td>
<td>10,184</td>
<td>4,692</td>
<td>3,867</td>
</tr>
<tr>
<td>Construction and Demolition</td>
<td>3,366</td>
<td>1,879</td>
<td>1,232</td>
</tr>
<tr>
<td>Light and Medium Duty Automobile</td>
<td>2,470</td>
<td>608</td>
<td>289</td>
</tr>
<tr>
<td>Chemical</td>
<td>924</td>
<td>584</td>
<td>358</td>
</tr>
<tr>
<td>Other (Fuel Combustion)</td>
<td>302</td>
<td>358</td>
<td>296</td>
</tr>
<tr>
<td>Fugitive Windblown Dust</td>
<td>291</td>
<td>292</td>
<td>237</td>
</tr>
<tr>
<td>Farming Operations</td>
<td>256</td>
<td>238</td>
<td>272</td>
</tr>
<tr>
<td>Paved Road Dust</td>
<td>227</td>
<td>215</td>
<td>289</td>
</tr>
</tbody>
</table>
Categories included in Off-Road Equipment in ECV

Toxicity-weighted Diesel Equivalent Emissions (lbs/year)

- **Construction and Mining Equipment**: 6,714 lb/year in 2018, followed by 3,304 lb/year in 2025 and 2,160 lb/year in 2030.
- **Industrial Equipment**: 1,077 lb/year in 2018, followed by 717 lb/year in 2025 and 526 lb/year in 2030.
- **Diesel TRU**: 705 lb/year in 2018, followed by 295 lb/year in 2025 and 250 lb/year in 2030.
- **Commercial Lawn and Garden**: 576 lb/year in 2018, followed by 805 lb/year in 2025 and 1,050 lb/year in 2030.
- **Lawn and Garden Other**: 358 lb/year in 2018, followed by 468 lb/year in 2025 and 590 lb/year in 2030.
- **Commercial Equipment (Other)**: 319 lb/year in 2018, followed by 105 lb/year in 2025 and 54 lb/year in 2030.
- **Airport GSE**: 285 lb/year in 2018, followed by 107 lb/year in 2025 and 66 lb/year in 2030.
Top 5 TACs in Eastern Coachella Valley: 2018

Eastern Coachella Valley Community TACs Emissions (toxicity-weighted diesel equivalent) in 2018

- **DPM**: 16,864 lbs/year
- **Cadmium**: 31,280 lbs/year
- **1,3 Butadiene**: 585 lbs/year
- **Benzene**: 539 lbs/year
- **Arsenic**: 8 lbs/year

Emissions breakdown:
- **Stationary and Area**
- **On-road**
- **Off-road**
Top 5 TACs in Eastern Coachella Valley: 2025

- **Arsenic**: 8,523 lbs/year
- **1,3 Butadiene**: 39,596 lbs/year
- **Cadmium**: 1,068 lbs/year
- **Benzene**: 8,596 lbs/year
- **DPM**: 18,106 lbs/year

**Eastern Coachella Valley Community TACs Emissions (toxicity-weighted diesel equivalent) in 2025**

- **Stationary and Area**
- **On-road**
- **Off-road**

Source: South Coast Air Quality Management District
Top 5 TACs in Eastern Coachella Valley: 2030

Eastern Coachella Valley Community TACs Emissions (toxicity-weighted diesel equivalent) in 2030

- **DPM**: 3,630 lbs/year (On-road: 2,600, Off-road: 1,030)
- **Benzene**: 668 lbs/year (On-road: 171, Off-road: 497)
- **Arsenic**: 9 lbs/year (On-road: 5, Off-road: 4)
- **Cadmium**: 1 lb/year (On-road: 1)
- **1,3 Butadiene**: 843 lbs/year (On-road: 316, Off-road: 527)

Emissions (lbs/year)

- 0
- 5,000
- 10,000
- 15,000
- 20,000
- 25,000
- 30,000
- 35,000
- 40,000
- 45,000
- 50,000

Legend:
- Orange: Stationary and Area
- Gray: On-road
- Yellow: Off-road
Top 5 Diesel PM Sources in Eastern Coachella Valley

- **Heavy Duty Trucks**: 3,682, 3,544
- **Trains**: 3,510, 6,412
- **Farm Equipment**: 5,322, 7,188
- **Off-Road Equipment**: 3,174, 4,506
- **Other (Fuel Combustion)**: 562, 338

**Emissions (lbs/year)**
## Proposed Regulations Reflected in the Future Emissions

**Table 4. Control Factors for Emissions from Vehicles**

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Pollutant</th>
<th>Control Factor 2025</th>
<th>Control Factor 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Heavy-Duty Low NOx Engine Standard</td>
<td>NOx</td>
<td>0.972-0.992</td>
<td>0.814-0.933</td>
</tr>
<tr>
<td>Proposed Heavy-Duty Inspection and Maintenance</td>
<td>PM$_{2.5}$</td>
<td>0.614</td>
<td>0.571</td>
</tr>
<tr>
<td>Proposed Heavy-Duty Inspection and Maintenance</td>
<td>NOx</td>
<td>0.851</td>
<td>0.827</td>
</tr>
<tr>
<td>Proposed Advanced Clean Car 2.0</td>
<td>PM$_{2.5}$</td>
<td>1.000</td>
<td>0.976-0.992</td>
</tr>
<tr>
<td>Proposed Advanced Clean Car 2.0</td>
<td>NOx</td>
<td>1.000</td>
<td>0.955-0.998</td>
</tr>
</tbody>
</table>
Effect of Proposed Regulations on CAP Emissions in ECV

![Bar chart showing emissions for NOX, VOC, and PM25 for years 2018, 2025 adopted, 2025 adopted+proposed, and 2030 adopted+proposed. The chart compares emissions in tons/year across different years and pollutants.]
Effect of Proposed Regulations on TAC Emissions in ECV
Summary for ECV

- Total toxicity-weighted TACs emissions are expected to decline in future years.
- Heavy-duty trucks is the largest source of TAC emissions in the base year, and farm equipment becomes the largest source of TAC emissions in future years.
- Diesel PM is the largest contributor to TAC emissions.
- Diesel PM declines substantially in future years, but it remains the largest contributor to toxic emissions in the future.
Limitations and Uncertainties

• Emissions inventory does not account for transport
  – Additional source attribution techniques will be used in the future (e.g. MATES V, community monitoring)
• Grid resolution impacts the accuracy of data within a community
• Area and off-road categories rely on generic spatial surrogates to assign emissions at a specific location. This allocation might not reflect the precise locations of these emissions within a community
• Uncertainties in chemical speciation profiles used in VOC, PM and air toxics
Updates to Emissions Inventory and Air Quality Modeling

• Available datasets:
  – MATES IV (2012-2013)
  – 2016 AQMP
  – 2020 SIP revisions
  – AB617 2018-designated and 2019-designated community inventories

• Upcoming updates
  – MATES V expected availability in 2021
  – 2022 AQMP, with major revisions in emissions and modeling methodologies
Neighborhood Scale Modeling

• Goals:
  – Develop modeling tools to estimate exposure at neighborhood scale
    • Hybrid approach using regional air quality models and high-resolution dispersion models
  – Identify contribution of regional transport, area and off-road mobile sources
  – Potential use in identifying hot spots
  – Analysis and integration of community monitoring data

• Ongoing work:
  – Developing the modeling capabilities
  – Modeling 5 major TACs from on-road sources, large facilities
  – Considering large emitters such as railyards

• Preliminary results expected in 2021
Overall Summary

- On-road and off-road sources dominate air pollutant and toxic air contaminant emissions in both Year 2 communities.
- Diesel PM is the dominant TAC in the two communities.
- On-road Diesel PM is expected to decline significantly, but overall, Diesel PM continues to be the most prevalent TAC in the future.
  - Off-road equipment is projected to become the largest emitter in SELA by 2025 and beyond.
  - Farm equipment is projected to become the largest emitter in ECV by 2025 and beyond.
Questions